WHAT IS CLAIMED IS:

1.   A SIMD type processor comprising:

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry

5   out an arithmetic processing to given data;

a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to

10   each of the arithmetic unit;

an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

15   a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit

20   when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption

25   processing to the parallel processing unit in place of the

parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

5   2.   The SIMD type processor according to claim 1, further comprising an instruction storing unit that stores the instruction.

3.   The SIMD type processor according to claim 1, further

10   comprising:

a storing unit that stores suspension information consisting of data and an instruction at a point of time when a parallel processing has been suspended by the suspending unit;

15   a detecting unit that detects whether the interruption processing has been finished or not; and

a transmission unit that transmits the suspension information stored by the storing unit to an original position when the detecting unit has detected a finish of

20   the interruption processing.

4.   The SIMD type processor according to claim 2, further comprising:

a program counter; and

25   an accumulator that is used in the arithmetic units,

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wherein the program counter assigns an instruction stored by the instruction storing unit, and each arithmetic units carries out the arithmetic processing using the accumulator.

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5.   The SIMD type processor according to claim 3, further comprising:

a program counter;

an accumulator and a resistor that are used in the

10   arithmetic units; and

a data register that stores data provided by the data providing unit,

wherein the suspension information consists of a program counter value, contents of the accumulator and the

15   register, and data stored in the data register, at a point of time when a parallel processing has been suspended by the suspending unit.

6.   The SIMD type processor according to claim 3,

20   wherein the storing unit stores various parameter data that are necessary for the arithmetic processing carried out by the arithmetic units.

7.   An image processing apparatus comprising:

an image data control unit connected to,

an image memory control unit that controls an image

reader that reads image data and/or an image memory thereby

5   to write/read image data and/or an image writer that writes

image data onto a transcription sheet; and

an image processing unit that carries out an image

processing of image data such as an editing of image data,

that receives at least third image data out of first

10   image data that has been read by the image reader, second

image data that has been read by the image memory control

unit, and said third image data that has been image processed

by the image processing unit, and

that transmits at least the third image data out of

15   the first image data, the second image data, and the third

imaged data, to the image memory control unit and/or the

image processing unit and/or the image writer,

wherein at least the image processing unit has a SIMD

type processor, which SIMD type processor includes,

20   a parallel processing unit that carries out a parallel

processing using a plurality of arithmetic units which carry

out an arithmetic processing to given data;

a data providing unit that provides data to be

arithmetically processed to the parallel processing unit;

25   an instruction providing unit that provides the same

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instruction for carrying out the arithmetic processing to each of the arithmetic unit;

an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

8. An image processing apparatus comprising:

an image memory control unit connected to,

an image reader that reads image data and/or an image writer that writes image data onto a transcription sheet;

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and

an image processing unit that carries out an image
processing of image data such as an editing of image data,

that receives at least second image data out of first
image data that has been read by the image reader, and said
second image data that has been image processed by the image
processing unit, and

that stores at least the second image data out of the
first image data and the second image data, into an image
memory, and transmits the image data stored in the image
memory to the image processing unit and/or the image writer,

wherein at least the image processing unit has a SIMD
type processor, which SIMD type processor includes,

a parallel processing unit that carries out a parallel
processing using a plurality of arithmetic units which carry
out an arithmetic processing to given data;

a data providing unit that provides data to be
arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same
instruction for carrying out the arithmetic processing to
each of the arithmetic unit;

an input unit that inputs an interruption request for
carrying out other parallel processing by interrupting a
parallel processing currently carried out by the parallel
processing unit;

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a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing

5   currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data

10   to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

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9.   The image processing apparatus according to claim 8, wherein the image memory control unit is connected to the image processing unit, the image reader and/or the image writer via the image data control unit, and

20   the image data control unit transmits and receives image data between the image memory control unit, the image processing unit, the image reader and/or the image writer.

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10.   The image processing apparatus comprising:

an image processing unit that is connected to an image reader that reads image data and/or image memory a control unit that controls an image memory to write/read image data

5   and/or an image writer that writes image data onto a transcription sheet,

that receives first image data that has been read by the image reader and/or second image data that has been read by the image memory control unit, and

10   that carries out an image processing of the first image data and/or the second image data such as an editing of image data, and transmits the image-processed image data to the image memory control unit and/or the image writer, wherein

at least the image processing unit has a SIMD type

15   processor, which SIMD type processor includes,

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry out an arithmetic processing to given data;

a data providing unit that provides data to be

20   arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to each of the arithmetic unit;

an input unit that inputs an interruption request for

25   carrying out other parallel processing by interrupting a

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parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

11. The image processing apparatus according to claim 10, wherein the image processing unit is connected to the image reader and/or the image memory control unit and/or the image writer via the image data control unit, and

the image data control unit transmits and receives image data between the image processing unit, the image reader and/or the image memory control unit and/or the image writer.

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12. The image processing apparatus according to claim 7, further comprising:

a facsimile control unit that is connected to the image memory control unit and/or the image data control unit, and

5 that carries out transmission and reception of a facsimile image.

13. The image processing apparatus according to claim 8, further comprising:

10 a facsimile control unit that is connected to the image memory control unit and/or the image data control unit, and that carries out transmission and reception of a facsimile image.

15 14. The image processing apparatus according to claim 10, further comprising:

a facsimile control unit that is connected to the image memory control unit and/or the image data control unit, and that carries out transmission and reception of a facsimile

20 image.

15. The image processing apparatus according to claim 7, wherein the image reader and/or the image data control unit and/or the image memory control unit and/or the image

25 processing unit and/or the image writer an/or the facsimile

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control unit are structured as independent units respectively.

16. The image processing apparatus according to claim 8, wherein the image reader and/or the image data control unit and/or the image memory control unit and/or the image processing unit and/or the image writer an/or the facsimile control unit are structured as independent units respectively.

17. The image processing apparatus according to claim 10, wherein the image reader and/or the image data control unit and/or the image memory control unit and/or the image processing unit and/or the image writer an/or the facsimile control unit are structured as independent units respectively.

18. A copier comprising a SIMD type processor, which SIMD type processor includes,

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry out an arithmetic processing to given data;

a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same

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instruction for carrying out the arithmetic processing to each of the arithmetic unit;

an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

19. A printer comprising a SIMD type processor, which SIMD type processor includes,

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry

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out an arithmetic processing to given data;

a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to each of the arithmetic unit;

an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

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20.   A facsimile machine comprising a SIMD type processor,
which SIMD type processor includes,

a parallel processing unit that carries out a parallel
processing using a plurality of arithmetic units which carry
out an arithmetic processing to given data;

a data providing unit that provides data to be
arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same
instruction for carrying out the arithmetic processing to
each of the arithmetic unit;

an input unit that inputs an interruption request for
carrying out other parallel processing by interrupting a
parallel processing currently carried out by the parallel
processing unit;

a decision unit that makes a decision as to whether
a parallel processing requested by the interruption request
input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing
currently being carried out by the parallel processing unit
when the decision unit has decided that the interruption
processing is to be carried out; and

a control unit that controls the data providing unit
and the instruction providing unit so as to provide data
to be arithmetically processed by the interruption
processing to the parallel processing unit in place of the

parallel processing suspended by the suspending unit and

to provide the same instruction necessary for carrying out

the interruption processing to each of the arithmetic units.

5   21.   A scanner comprising a SIMD type processor, which SIMD

type processor includes,

a parallel processing unit that carries out a parallel

processing using a plurality of arithmetic units which carry

out an arithmetic processing to given data;

10   a data providing unit that provides data to be

arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same

instruction for carrying out the arithmetic processing to

each of the arithmetic unit;

15   an input unit that inputs an interruption request for

carrying out other parallel processing by interrupting a

parallel processing currently carried out by the parallel

processing unit;

a decision unit that makes a decision as to whether

20   a parallel processing requested by the interruption request

input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing

currently being carried out by the parallel processing unit

when the decision unit has decided that the interruption

25   processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

22. A parallel processing apparatus comprising:

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry out an arithmetic processing to given data;

a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to each of the arithmetic unit;

an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing

currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

23. The parallel processing apparatus according to claim 22, further comprising an instruction storing unit that stores the instruction.

24. The parallel processing apparatus according to claim 22, further comprising:

a storing unit that stores suspension information consisting of data and an instruction at a point of time when a parallel processing has been suspended by the suspending unit;

a detecting unit that detects whether the interruption processing has been finished or not; and

a transmission unit that transmits the suspension information stored by the storing unit to an original

position when the detecting unit has detected a finish of the interruption processing.

25.   The parallel processing apparatus according to claim 22, further comprising:

a program counter; and

an accumulator that is used in the arithmetic units, wherein the program counter assigns an instruction stored by the instruction storing unit, and each arithmetic units carries out the arithmetic processing using the accumulator.

26.   The parallel processing apparatus according to claim 24, further comprising:

a program counter;

an accumulator and a resistor that are used in the arithmetic units; and

a data register that stores data provided by the data providing unit,

wherein the suspension information consists of a program counter value, contents of the accumulator and the register, and data stored in the data register, at a point of time when a parallel processing has been suspended by the suspending unit.

27.   The parallel processing apparatus according to claim
24,

       wherein the storing unit stores various parameter data
that are necessary for the arithmetic processing carried
5 out by the arithmetic units.

28.   An image processing apparatus comprising:
       an image data control unit connected to,
       an image memory a control unit that controls an image
10 reader that reads image data and/or an image memory thereby
to write/read image data and/or an image writer that writes
image data onto a transcription sheet; and
       an image processing unit that carries out an image
processing of image data such as an editing of image data,
15   that receives at least third image data out of first
image data that has been read by the image reader, second
image data that has been read by the image memory control
unit, and said third image data that has been image processed
by the image processing unit, and
20   that transmits at least the third image data out of
the first image data, the second image data, and the third
imaged data, to the image memory control unit and/or the
image processing unit and/or the image writer,
       wherein at least the image processing unit out of all
25 said units has a parallel processing apparatus, which

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parallel processing apparatus includes,

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry out an arithmetic processing to given data;

5   a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to each of the arithmetic unit;

10   an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether
15   a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit when the decision unit has decided that the interruption
20   processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the
25   parallel processing suspended by the suspending unit and

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to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

29.   An image processing apparatus comprising:

5   an image memory control unit connected to,

an image reader that reads image data and/or an image writer that writes image data onto a transcription sheet; and

an image processing unit that carries out an image

10   processing of image data such as an editing of image data,

that receives at least second image data out of first image data that has been read by the image reader, and said second image data that has been image processed by the image processing unit, and

15   that stores at least the second image data out of the first image data and the second image data, into an image memory, and transmits the image data stored in the image memory to the image processing unit and/or the image writer,

wherein at least the image processing unit out of all

20   said units has a parallel processing apparatus, which parallel processing apparatus includes,

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry out an arithmetic processing to given data;

25   a data providing unit that provides data to be

arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to each of the arithmetic unit;

5   an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether

10   a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit when the decision unit has decided that the interruption

15   processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the

20   parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

30.   The image processing apparatus according to claim 29,

       wherein the image memory control unit is connected

to the image processing unit, the image reader and/or the

image writer via the image data control unit, and

5   the image data control unit transmits and receives

image data between the image memory control unit, the image

processing unit, the image reader and/or the image writer.

31.   The image processing apparatus comprising:

10   image processing unit connected to an image reader

that reads image data and/or image memory a control unit

that controls an image memory to write/read image data and/or

an image writer that writes image data onto a transcription

sheet,

15   that receives first image data that has been read by

the image reader and/or second image data that has been read

by the image memory control unit, and

       that carries out an image processing of the first image

data and/or the second image data such as an editing of image

20   data, and transmits the image-processed image data to the

image memory control unit and/or the image writer,

       wherein at least the image processing unit out of all

said units has a parallel processing apparatus, which

parallel processing apparatus includes,

25   a parallel processing unit that carries out a parallel

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processing using a plurality of arithmetic units which carry out an arithmetic processing to given data;

a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to each of the arithmetic unit;

an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

32.	The image processing apparatus according to claim 31,

wherein the image processing unit is connected to the

image reader and/or the image memory control unit and/or

the image writer via the image data control unit, and

5	the image data control unit transmits and receives

image data between the image processing unit, the image

reader and/or the image memory control unit and/or the image

writer.

10	33.	The image processing apparatus according to claim 28,

further comprising:

a facsimile control unit that is connected to the image

memory control unit and/or the image data control unit, and

that carries out transmission and reception of a facsimile

15	image.

34.	The image processing apparatus according to claim 29,

further comprising:

a facsimile control unit that is connected to the image

20	memory control unit and/or the image data control unit, and

that carries out transmission and reception of a facsimile

image.

35.   The image processing apparatus according to claim 31,
further comprising:

a facsimile control unit that is connected to the image
memory control unit and/or the image data control unit, and
that carries out transmission and reception of a facsimile
image.

36.   The image processing apparatus according to claim 28,
wherein the image reader and/or the image data control
unit and/or the image memory control unit and/or the image
processing unit and/or the image writer an/or the facsimile
control   unit   are   structured   as   independent   units
respectively.

37.   The image processing apparatus according to claim 29,
wherein the image reader and/or the image data control
unit and/or the image memory control unit and/or the image
processing unit and/or the image writer an/or the facsimile
control   unit   are   structured   as   independent   units
respectively.

38.   The image processing apparatus according to claim 31,
wherein the image reader and/or the image data control
unit and/or the image memory control unit and/or the image
processing unit and/or the image writer an/or the facsimile

control unit are structured as independent units respectively.

39.   A copier comprising a parallel processing apparatus,
which parallel processing apparatus includes,

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry out an arithmetic processing to given data;

a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to each of the arithmetic unit;

an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit

and the instruction providing unit so as to provide data to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and

5   to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

40.   A printer comprising a parallel processing apparatus, which parallel processing apparatus includes,

10   a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry out an arithmetic processing to given data;

        a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

15   an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to each of the arithmetic unit;

        an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a

20   parallel processing currently carried out by the parallel processing unit;

        a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

25   a suspending unit that suspends a parallel processing

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currently being carried out by the parallel processing unit

when the decision unit has decided that the interruption

processing is to be carried out; and

a control unit that controls the data providing unit

5   and the instruction providing unit so as to provide data

to be arithmetically processed by the interruption

processing to the parallel processing unit in place of the

parallel processing suspended by the suspending unit and

to provide the same instruction necessary for carrying out

10 the interruption processing to each of the arithmetic units.

41.   A facsimile machine comprising a parallel processing

apparatus, which parallel processing apparatus includes,

a parallel processing unit that carries out a parallel

15 processing using a plurality of arithmetic units which carry

out an arithmetic processing to given data;

a data providing unit that provides data to be

arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same

20 instruction for carrying out the arithmetic processing to

each of the arithmetic unit;

an input unit that inputs an interruption request for

carrying out other parallel processing by interrupting a

parallel processing currently carried out by the parallel

25 processing unit;

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a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing

5   currently being carried out by the parallel processing unit when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data

10 to be arithmetically processed by the interruption processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

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42.   A scanner comprising a parallel processing apparatus, which parallel processing apparatus includes,

a parallel processing unit that carries out a parallel processing using a plurality of arithmetic units which carry

20 out an arithmetic processing to given data;

a data providing unit that provides data to be arithmetically processed to the parallel processing unit;

an instruction providing unit that provides the same instruction for carrying out the arithmetic processing to

25 each of the arithmetic unit;

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an input unit that inputs an interruption request for carrying out other parallel processing by interrupting a parallel processing currently carried out by the parallel processing unit;

5   a decision unit that makes a decision as to whether a parallel processing requested by the interruption request input from the input unit is to be carried out or not;

a suspending unit that suspends a parallel processing currently being carried out by the parallel processing unit

10   when the decision unit has decided that the interruption processing is to be carried out; and

a control unit that controls the data providing unit and the instruction providing unit so as to provide data to be arithmetically processed by the interruption

15   processing to the parallel processing unit in place of the parallel processing suspended by the suspending unit and to provide the same instruction necessary for carrying out the interruption processing to each of the arithmetic units.

20   43.   A parallel processing method comprising:

a data providing step of providing data to be processed as a parallel processing;

an instruction providing step of providing an instruction necessary for carrying out the parallel

25   processing;

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a parallel-processing step of carrying out a parallel

processing of the data provided at the data providing step,

based on the instruction provided at the instruction

providing step;

5   an input step of inputting an interruption request

for carrying out other parallel processing by interrupting

a parallel processing currently carried out at the

parallel-processing step;

a decision step of making a decision as to whether

10   an interruption processing of the parallel processing

requested at the input step is to be carried out or not;

a suspending step of suspending a parallel processing

currently being carried out at the parallel-processing step

when a decision has been made at the decision step that the

15   interruption processing is to be carried out; and

a replacing step of providing data to be parallel

processed by the interruption processing and an instruction

necessary for carrying out the interruption processing, in

place of the parallel processing suspended at the suspending

20   step.

44.   The parallel processing method according to claim 43,

further comprising:

a saving step of saving data and an instruction at

25   a point of time when a parallel processing has been suspended

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at the suspending step;

a detecting step of detecting whether the interruption processing has been finished or not; and

a restoring step of restoring the data and the

5   instruction saved at the saving step to an original state at the point of time when the processing has been suspended at the suspending step, when a finish of the interruption processing has been detected at the detecting step.

10   45.   An image processing method comprising:

an image data receiving step of receiving image data from any one processing unit out of a plurality of processing units that carry out different kinds of processing of image data such as an image data reading processing, an image data

15   storing processing, an image (editing) processing, and a transmission/reception processing;

an image data control information obtaining step of obtaining image data control information that includes information relating to the contents of processing of the

20   image data received at the image data receiving step;

a   transmission   destination   processing   unit determining step of determining a processing unit at a transmission destination to which the image data received at the image data receiving step is to be transmitted, based

25   on the image data control information obtained at the image

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data control information obtaining step; and

a transmission step of transmitting the image data to the transmission destination processing unit that has been determined at the transmission destination processing

5 unit determining step, wherein

the processing of the image data in at least one processing unit among the plurality of processing units includes a parallel processing method, which parallel processing method includes the steps of,

10 a data providing step of providing data to be processed as a parallel processing;

an instruction providing step of providing an instruction necessary for carrying out the parallel processing;

15 a parallel-processing step of carrying out a parallel processing of the data provided at the data providing step, based on the instruction provided at the instruction providing step;

an input step of inputting an interruption request

20 for carrying out other parallel processing by interrupting a parallel processing currently carried out at the parallel-processing step;

a decision step of making a decision as to whether an interruption processing of the parallel processing

25 requested at the input step is to be carried out or not;

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a suspending step of suspending a parallel processing currently being carried out at the parallel-processing step when a decision has been made at the decision step that the interruption processing is to be carried out; and

5   a replacing step of providing data to be parallel processed by the interruption processing and an instruction necessary for carrying out the interruption processing, in place of the parallel processing suspended at the suspending step.

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46.   The image processing method according to claim 45, further comprising a control information input step of inputting the image data control information,

      wherein at the image data control information
15   obtaining step, the image data control information input at the control information input step is obtained.

47.   The image processing method according to claim 45,

      wherein the image processing method is used for a
20   correction   processing   for   correcting   information deterioration of image data or a picture quality processing corresponding to image data corrected by the correction processing or image data corresponding to an image forming characteristic.

25

48.   A computer readable medium for storing instructions, which when executed on a computer, causes the computer to perform the steps of:

a data providing step of providing data to be processed
5   as a parallel processing;

an instruction providing step of providing an instruction necessary for carrying out the parallel processing;

a parallel-processing step of carrying out a parallel
10   processing of the data provided at the data providing step, based on the instruction provided at the instruction providing step;

an input step of inputting an interruption request for carrying out other parallel processing by interrupting
15   a parallel processing currently carried out at the parallel-processing step;

a decision step of making a decision as to whether an interruption processing of the parallel processing requested at the input step is to be carried out or not;

20   a suspending step of suspending a parallel processing currently being carried out at the parallel-processing step when a decision has been made at the decision step that the interruption processing is to be carried out; and

a replacing step of providing data to be parallel
25   processed by the interruption processing and an instruction

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necessary for carrying out the interruption processing, in place of the parallel processing suspended at the suspending step.

5   49.   A computer readable medium for storing instructions, which when executed on a computer, causes the computer to perform the steps of:

an image data receiving step of receiving image data from any one processing unit out of a plurality of processing
10   units that carry out different kinds of processing of image data such as an image data reading processing, an image data storing processing, an image (editing) processing, and a transmission/reception processing;

an image data control information obtaining step of
15   obtaining image data control information that includes information relating to the contents of processing of the image data received at the image data receiving step;

a   transmission   destination   processing   unit determining step of determining a processing unit at a
20   transmission destination to which the image data received at the image data receiving step is to be transmitted, based on the image data control information obtained at the image data control information obtaining step; and

a transmission step of transmitting the image data
25   to the transmission destination processing unit that has

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been determined at the transmission destination processing

unit determining step, wherein

the processing of the image data in at least one

processing unit among the plurality of processing units

5 includes a parallel processing method, which parallel

processing method includes the steps of,

a data providing step of providing data to be processed

as a parallel processing;

an instruction providing step of providing an

10 instruction necessary for carrying out the parallel

processing;

a parallel-processing step of carrying out a parallel

processing of the data provided at the data providing step,

based on the instruction provided at the instruction

15 providing step;

an input step of inputting an interruption request

for carrying out other parallel processing by interrupting

a parallel processing currently carried out at the

parallel-processing step;

20 a decision step of making a decision as to whether

an interruption processing of the parallel processing

requested at the input step is to be carried out or not;

a suspending step of suspending a parallel processing

currently being carried out at the parallel-processing step

25 when a decision has been made at the decision step that the

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interruption processing is to be carried out; and

a replacing step of providing data to be parallel processed by the interruption processing and an instruction necessary for carrying out the interruption processing, in place of the parallel processing suspended at the suspending step.